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# STATISTICAL BULLETIN

METROPOLITAN LIFE INSURANCE COMPANY

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## Rabies: An All-Year Hazard

"DOG DAYS," according to a dictionary definition, is a term used to describe "the sultry, close part of summer when dogs are supposed to be specially liable to go mad." It will be news, therefore, to the average person that actually fewer animals go mad in summer than during any other season of the year. This conclusion is indisputable. It is based on reports of the prevalence of rabies in animals for six years, as supplied to the UNITED STATES PUBLIC HEALTH SERVICE by approximately one half of the States.

Spring, for which period the six-year daily average of cases of rabid animals was 12.2, is the season when the disease is most prevalent. There is very little difference, however, between the incidence of rabies in the spring and during the cold months of winter, when the daily average is 11.7. During the summer, which includes the "dog days," the average falls to 8.2. In other words, only two animals become rabid in summer to every three in the spring, and only seven during the hot summer months to every 10 during the winter.

The chief lesson to be learned from these figures, however, is the necessity for systematic, 100-percent muzzling of dogs at all seasons of the year. Many instances are on record of more or less determined opposition to the enforcement of dog-muzzling laws and ordinances during the cold months. Such resistance doubtless has its foundation in the impression that rabies is a warm-weather disease in both animals and human beings. The facts, as just stated, show beyond contradiction that this impression is a mistaken one so far as the seasonal incidence of this dread disease in animals is concerned.

With respect to human rabies, the situation differs only slightly from that described for animals. While it is true that a few more human cases are reported for July and August than at other seasons, the margin of difference is slight. In fact, the Public Health Service records show that for every five cases of human rabies in both July and August there are four cases in January, May, and October. The slightly larger number of these "dog days" cases in human beings is

probably due, in part, to the fact that the length of the incubation period in man, while variable, averages from six weeks to two months. It is thus to be expected that the heaviest incidence of animal rabies, which occurs in the spring, will be followed by the maximum prevalence of human rabies in the summer months. Another point to be reckoned with is that the late spring and summer are the periods of greatest out-of-doors exposure to dog bites. This applies especially to children, with whom incubation is usually of shorter duration than in adults, and who, accordingly, are more apt to develop rabies soon after being bitten.

Since rabies is an all-year-round disease, both as to source of infection from animals and occurrence in man, the importance of rigid enforcement of dog-muzzling laws and of gathering in stray dogs at all seasons is apparent. When the disease is once established in a human being it is hopelessly incurable. No method of treatment has yet been discovered which, at that stage, is of the slightest avail. The only protection against rabies lies in its prevention by means of the Pasteur prophylactic treatment. This should be administered as soon as possible after a dog bite, whether the animal be merely suspected of being mad or is known to be so. Fortunately, the treatment gives a practically 100 percent protection. Conclusive evidence of its efficacy is afforded by the fact that in 6,156 cases treated at the PASTEUR INSTITUTE in Paris in the 10-year period 1924 to 1933 only a single death occurred.

## Girth and Death

THE longer the belt line, the shorter the life line. Life insurance studies have shown repeatedly that body girth and length of life vary inversely with each other. This observation is one of the most fundamental and most valuable contributions of Life insurance statistics to public health. It deserves increased emphasis today because serious attention to the problem of overweight affords one of the chief hopes of increasing the average length of life by reducing the mortality rate from the important diseases of middle and later life against which the least progress has been made.

Overweight is distinctly detrimental to health and tends to shorten life. The most recent insurance study shows that distinctly obese men, that is, those 35 percent or more above average weight, have a mortality over 1½ times that of average-weight men. This holds despite the fact that this group of men, as Life insurance policyholders, includes only the best of the overweights, since they have been especially selected by medical examination as free from any other

serious impairment. The high mortality found among these extreme overweights prevails throughout adult life.

The greater the degree of overweight, the greater is the mortality rate. Thus, in contrast with the approximately 60 percent excess mortality of the distinctly obese group with 35 percent overweight or more, men who are from 25 to 34 percent overweight have an excess mortality of 45 percent, and those 15 to 24 percent overweight, an excess mortality of 30 percent. Those but slightly overweight have a mortality only a little higher than those of average weight.

Once full maturity has been reached, underweight, that is, weight below the average for a given age, is a decided advantage. With the better understanding of the way tuberculosis spreads and with its ultimate conquest an attainable goal, that disease is much less a menace to young underweights than it was, and the mortality of underweights, relative to those of heavier builds, has improved.

The most favorable build as regards mortality at the various adult ages in men is as follows: up to age 30, slight overweight; ages 30 to 39, average weight; ages 40 to 49, slight underweight; ages 50 and over, an appreciable degree of underweight.

There are several types of overweights. The pot-bellied variety is the worst. The most recent insurance study shows that overweights whose abdominal girth was more than 2 inches greater than chest girth at full expansion, had an extra mortality of approximately 50 percent, over and above the excess mortality associated with overweight itself. Another study has shown that tall overweights with relatively long trunks and short legs did better than other tall overweights; but among medium height and short overweights, the reverse is true. Overweights with big chests showed up less favorably than those with smaller chest girths. Generally speaking, the solidly built, large-boned overweight is superior to the flabbier type.

Certain serious physical defects are generally more common among overweights than those of slighter build. High blood pressure, for example, is over 2½ times as common among overweights as among persons of average weight. Albuminuria and glycosuria in significant amounts are nearly twice as frequent.

The specific hazards of overweight include most of the important diseases of adult life, especially the cardiovascular-renal diseases, which are responsible for an increasing proportion of the death toll today. Thus, the death rate of overweights from heart disease and from cerebral hemorrhage is 1½ times that of average weights and nearly twice that of underweights. For angina pectoris, the difference is even larger. The mortality of overweights from this condition is more than twice that of average weights and 2½ times that of underweights. Bright's disease ex-

acts a death rate among overweights 1¾ times that among average weights, and 2¼ times that among underweights. Cancer has the smallest variation in mortality according to build among the important diseases of later life. But even cancer deaths occur with a slight excess among overweights. The significance of this finding is not entirely clear, however.

The most striking difference of all is found for diabetes. The death rate of overweights from this disease is 2½ times that among average weights and four times that among underweights. Moreover, the margin between overweights and those of slighter build increases rapidly as the degree of overweight advances. Thus among those who are actually stout (25 percent or more overweight), the diabetes death rate is more than eight times that of average weight persons, and 13 times that of underweights.

The respiratory diseases are the only important ones that cause higher mortality among underweights. This is particularly true of pulmonary tuberculosis, but, as we have seen, this disease is on the decline. Pneumonia, on the other hand, exacts a high mortality not only among those who are underweight, but also among those who are extremely overweight. It is a common observation by physicians that obesity is an unfavorable factor in the prognosis of pneumonia. With regard to influenza, the situation is not clear-cut but, generally speaking, it is least favorable among young persons who are overweight or very much underweight.

Even fatal accidents are more common among overweights than underweights, and their incidence varies directly with the degree of overweight. This may be explained by clumsiness or lack of physical agility resulting from overweight itself, or by tardy mental reaction to emergencies. The latter may have its origin in the same endocrine deficiency as the overweight. It is likely that both elements enter into the situation.

It is interesting also that the suicide rate is greater among overweights than among those of average weight. The reason for this excess is not clear, but possibly psychological maladjustments related either to overweight itself or to defects associated with overweight, play a part.

Increase in weight with age throughout adult life is common. This reflects less a physiological need than the cumulative effect of our living habits. On the whole, Americans are relatively big eaters. Although the per capita consumption of food probably has not increased, and may actually have decreased, it has not kept pace with the decided reduction in the food requirements of the average individual. For, in almost every field of work, and in recreation as well as in gainful pursuits, the tendency has been toward less laborious activity, and consequently toward a decline in the energy requirements of the individual. Machines have very largely taken the place of

human labor, in the factory, on the farm, and in the home. We walk much less and ride much more. In sports, we are too often spectators rather than participants.

It is clear, then, that great gains in individual and community health are to be achieved by reducing the incidence of overweight. But in working towards this goal, care must be taken not to make the cure worse than the disease. Ill-advised and haphazard methods of weight reduction may do more harm than overweight itself. It is important to insist more particularly on the necessity for medical supervision, the use of sensible and balanced diets, and the avoidance of self-prescribed drugs and of too-rapid loss of weight.

In conclusion, a very distinct caution is necessary in the case of young persons, particularly women. As we have shown, a slight degree of overweight is not harmful and may be beneficial at the younger ages, particularly in girls and young women. Consequently, they should not reduce unless they are actually overweight and unless they have the permission and guidance of a physician. Young women have suffered most seriously from the fantastic reducing diets and reducing drugs that have been in vogue in recent years. It is noteworthy that the tuberculosis death rate has declined least among young women in the late 'teens and early 20's. There is good foundation for the view that much of this is the result of poor resistance to disease in young women who have been weakened by foolish and unnecessary dieting.

## Ages of Brides and Grooms

THE average young bride chooses a mate several years older than herself; among those who defer their marriage to later ages, the average age of the groom tends to be more like the bride's. On the other hand, the average groom of young age takes a bride somewhat younger than himself, but the difference in ages increases as the age of marriage for the groom advances. These observations, which are based on marriage statistics for New York State, exclusive of New York City, for the years 1929 to 1931, are in accordance with popular conception. The data here presented in the table on page 8, and Figures 1 and 2 portray the quantitative aspects of this situation.

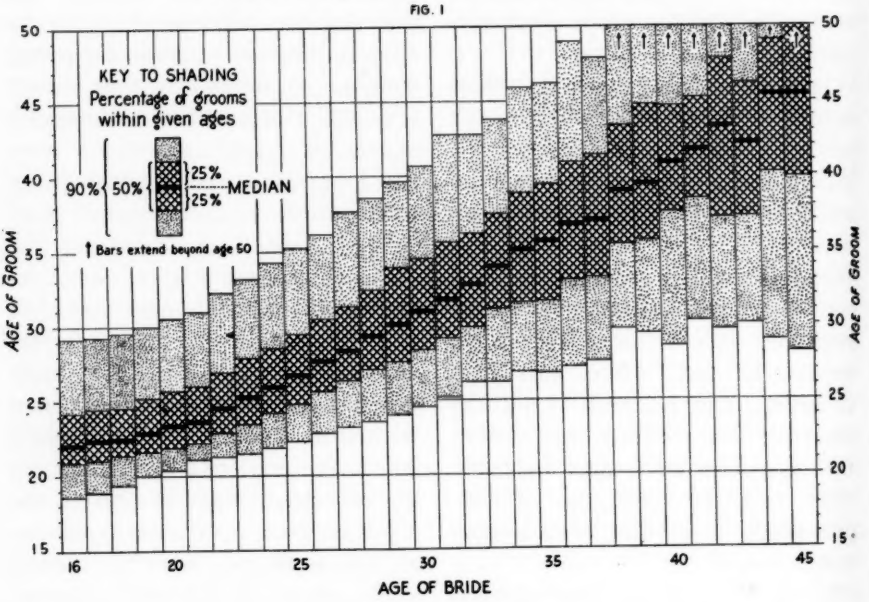
According to the data shown in the table, which relate only to cases where bride and groom have both contracted their first marriage, for brides 16 years of age the median age of the grooms was 22.1 years, a difference of 6.1 years. Among those who become brides at age 21, the groom averaged 2.7 years older; the difference was only 1.8 years at age 25, and fell further to one year at age 30, beyond which age there was

## AGE RANGE OF GROOMS FOR BRIDES OF EACH AGE

FIRST MARRIAGES ONLY

New York State (*excluding New York City*) 1929 - 1931

FIG. 1

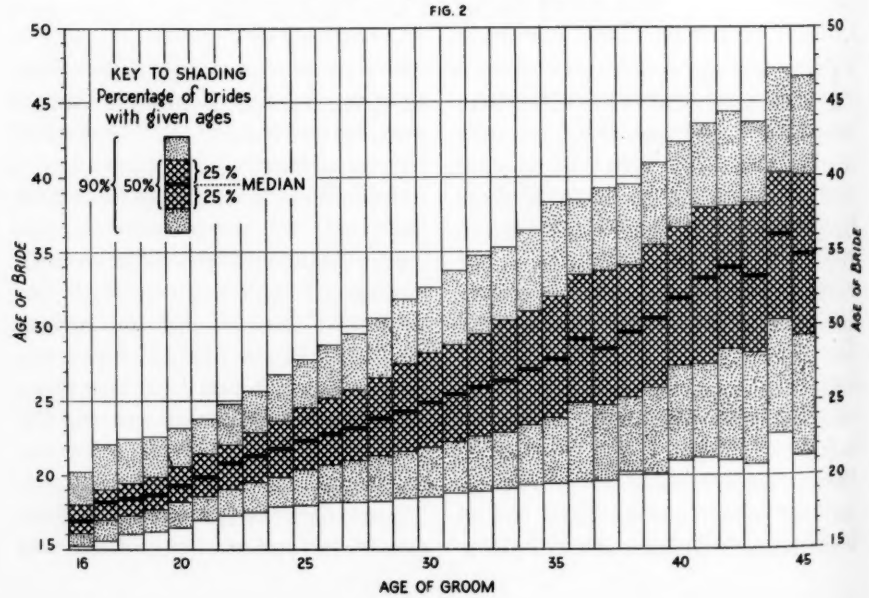



## AGE RANGE OF BRIDES FOR GROOMS OF EACH AGE

FIRST MARRIAGES ONLY

New York State (*excluding New York City*) 1929 - 1931

FIG. 2

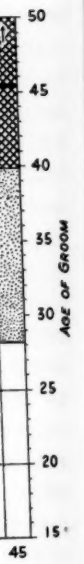


not much change in the age difference. Aside from the very few boys who became grooms at age 16 and chose brides of an average age 0.9 year greater than their own, there will be observed, in the table, an increasing preference among men of higher ages for relatively younger brides. For grooms of age 21, the average age of the bride was only 1.1 years less; among grooms of age 25, this difference increased to 2.7 years; at ages 30 and 35 of the groom, the corresponding figures were 5.1 and 7.2 years respectively.

Further insight into the relative age distributions of brides and grooms may be gleaned from an inspection of Fig. 1, which shows, for individual ages of brides, the ages between which are comprised 50 percent and 90 percent of their grooms; corresponding data for individual ages of grooms will be found in Fig. 2. Both figures show the common characteristic that the dispersion of ages for the consort becomes greater as the age at marriage of either bride or groom advances, the tendency being more noticeable in Fig. 2 than in Fig. 1. It will also be noted in both diagrams, but especially in Fig. 1, that up to comparatively late ages at marriage, the shaded areas below the median lines are smaller than the areas above these lines. A third characteristic to be observed is that the stepped curve representing median ages rises more sharply in Fig. 1 than in Fig. 2. This shows graphically the observations gathered from the table on page 8, namely, that the median age of grooms increases more rapidly with the advancing age of brides than does the median age of brides with advancing age of grooms.

The implications carried by these findings are fairly obvious. The young bride chooses her partner over a wider range of ages than does the young groom in taking his wife. Furthermore, the range of ages from which a husband or wife is chosen increases with advancing age, more so in the case of grooms taking wives than in the case of brides taking husbands. Among the younger brides, there is a markedly greater concentration of grooms in ages below the median than in ages above the median; this tendency appears at all ages here observed. Among grooms, this concentration of consorts in ages below the median is not so distinct, and disappears by about age 35.

The characteristics in ages of bride and groom set forth above, which arise primarily from our biological make-up, are also the source of many social problems. Where there is a wide difference between the age of husband and wife, the risk of widowhood and orphanhood become more acute; the chances of these unfortunate states become greater not only because it is the husband who is usually several years older than the wife, but also because the male suffers from a higher mortality than the female. This situation would be accentuated in a population in which there were a substantial amount of postponement of marriage, particularly on the part of the male, for, as



has just been shown, the difference between his age and that of his bride tends to become greater as the age of the groom increases. To the social agencies that have been developed to deal with the problems of widowhood and orphanhood, the marital habits and tendencies of the country are thus matters of paramount interest.

*Median Ages of Brides and Grooms Contracting First Marriages, According to Specified Ages of the Consort, New York State Exclusive of New York City, 1929–1931*

| Age of Bride | Median Age of Groom | Difference in Age of Bride from Median Age of Groom | Age of Groom | Median Age of Bride | Difference in Median Age of Bride from Age of Groom |
|---|---|---|---|---|---|
| 16 | 22.1 | 6.1 | 16 | 16.9 | —0.9 |
| 21 | 23.7 | 2.7 | 21 | 19.9 | 1.1 |
| 25 | 26.8 | 1.8 | 25 | 22.3 | 2.7 |
| 30 | 31.0 | 1.0 | 30 | 24.9 | 5.1 |
| 35 | 35.7 | 0.7 | 35 | 27.8 | 7.2 |
| 40 | 40.9 | 0.9 | 40 | 31.9 | 8.1 |

## Recent Publications of the Statistical Bureau

DURING the past year the results of several studies of the Statistical Bureau of the Metropolitan Life Insurance Company have appeared in various periodicals or pamphlets. The following list gives the titles of recent publications of the Bureau, available for distribution, which will be sent to interested readers of the STATISTICAL BULLETIN upon request:

1. *Mortality from Cardiovascular-Renal Diseases*, Metropolitan Life Insurance Company, 1936.
2. *Modern Life Takes Its Toll—The Story of Diabetes, Scribners*, New York, July 1936.
3. *Studies in Diabetes Mellitus: Heredity, American Journal of the Medical Sciences*, Philadelphia, January 1937.
4. *Statistics on Morbidity and Mortality from Cancer in the United States, American Journal of Cancer*, New York, April 1937.
5. *Uses of the Life Table in Vital Statistics, American Journal of Public Health*, New York, May 1937.
6. *The Health of the Negro, Journal of Negro Education*, July 1937. (Available in July.)
7. *A Statistical Analysis of Mortality from Cancer, Symposium on Cancer*, American Association for the Advancement of Science, 1937. (Available in July.)
8. *The Weight Standards and Mortality of Very Tall Men*, Proceedings of the Association of Life Insurance Medical Directors of America, New York, 1937. (Available in July.)

# Health Record for April 1937

THE prospect that 1937 will be a good health year grows brighter as the months pass. The outlook at the start of the year was anything but promising, for at the end of January the death rate was more than 10 percent higher than last year's January figure among 17,500,000 Metropolitan Industrial policyholders. By the close of April, however, this unfavorable margin had been reduced to only 3.3 percent. As last year registered the lowest death rate of all time in this representative cross-section of the population, there is clearly a fair chance that 1937 also will ultimately make a good health record. There is always the possibility, of course, that conditions may change for the worse during the remainder of the year, but, thus far, there is no indication of any untoward developments. The influenza outbreak of last winter, which was largely responsible for the high mortality up to mid-February, has subsided; and to judge by the behavior of influenza outbreaks in past years, another one during 1937 is unlikely.

Provisional mortality reports for the general population of the large cities of the country confirm the record for these Metropolitan policyholders. In New York City, for example, the death rate up to the week ending January 30th was 13.9 per 1,000, as against 12.0 last year. At the close of the second week of May, however, the year-to-date death rate in New York had been reduced to 12.0 per 1,000, the identical figure recorded for the like period of 1936. Reports to the Bureau of the Census from 86 large cities also show that the health picture has improved materially since the first few weeks of 1937.

The more important aspects of the year's mortality record, to date, as they relate to individual causes of death, follow.

Three of the four principal communicable diseases of childhood are running lower mortality rates than at this time last year. Whooping cough is the one exception, but despite a sharp rise over its early 1936 figure, its mortality rate is still at a low level. Tuberculosis, which registered rises over last year's death rate in January, February, and March, dropped well below the 1936 figure for the month of April. Its death rate is now only 1.4 percent above that for the like period of last year, whereas at the end of January, the unfavorable margin was 8.8 percent. Syphilis, cerebral hemorrhage, diarrheal complaints, chronic nephritis, and puerperal conditions are recording lower mortality rates than in 1936.

The unfavorable items thus far in the 1937 mortality record are influenza, cancer, diabetes, heart and coronary artery diseases, pneumonia, appendicitis, and automobile fatalities.

Interest centers especially on the pronounced rises for cancer and auto-

mobile accidents. The cancer death rate is up nearly 6 percent. This is a disturbing development inasmuch as a drop was recorded last year which, it was hoped, would mark the beginning of a downward swing in cancer mortality. The automobile accident situation is definitely bad. The cumulative death rate is more than 23 percent higher than for the January-April period of 1936. It will be recalled that throughout the United States more than 37,000 persons lost their lives in motor vehicle accidents last year. The figure will be higher this year.

Health conditions in the general population of the large cities of the United States, as reflected by the prevalence of communicable disease, were favorable during the month of April. There were fewer cases of diphtheria, scarlet fever, and influenza reported in April than during March 1937 or April 1936. Smallpox alone, among the infectious and contagious diseases, showed undue prevalence for this season of the year. The situation is rather disturbing as the prevalence of this disease in April was not only appreciably higher than during March, but cases of smallpox exceeded the number reported for the corresponding month of 1936 by 68 percent.

Items of special health interest recently reported were as follows: Out of 1,013 contesting cities New York won first prize in the annual traffic safety contest conducted during 1936 by the NATIONAL SAFETY COUNCIL. Kansas City, Mo., won first rank in the 250,000 to 500,000 population group; Omaha, Nebr., in the 100,000 to 250,000 class; Jackson, Mich., in cities ranging from 50,000 to 100,000; West New York, N. J., in cities from 25,000 to 50,000; and Wilmette, Ill., in the 10,000 to 25,000 group. It has been announced that during 1937 the major project of the Public Welfare Department of the GENERAL FEDERATION OF WOMEN'S CLUBS will be its fight against syphilis.

The following table shows the mortality among Industrial policyholders for April 1937, March 1937, and April 1936, together with the cumulative rates for the first four months of each year.

## *METROPOLITAN LIFE INSURANCE COMPANY*

*Death Rates* per 100,000 for Principal Causes. Weekly Premium-Paying Business in Industrial Department. All Ages (Annual Basis).*

MONTHS OF APRIL 1937, MARCH 1937, AND APRIL 1936.

| CAUSES OF DEATH | ANNUAL RATE PER 100,000 LIVES EXPOSED* | | | | |
|---|---|---|---|---|---|
| | April 1937 | March 1937 | April 1936 | Cumulative January-April | |
| | | | | 1937 | 1936 |
| TOTAL—ALL CAUSES | 915.5 | 962.8 | 919.8 | 963.1 | 932.2 |
| Typhoid fever | 0.7 | 0.5 | 0.9 | 0.6 | 0.6 |
| Measles | 1.5 | 1.3 | 1.8 | 1.1 | 1.5 |
| Scarlet fever | 2.5 | 2.8 | 3.9 | 2.5 | 3.1 |
| Whooping cough | 2.1 | 4.2 | 2.2 | 2.9 | 1.8 |
| Diphtheria | 1.4 | 1.7 | 1.7 | 2.0 | 2.2 |
| Influenza | 25.7 | 46.3 | 25.4 | 41.4 | 25.6 |
| Tuberculosis (all forms) | 56.7 | 58.0 | 59.4 | 56.8 | 56.0 |
| Tuberculosis of respiratory system | 51.0 | 52.6 | 52.4 | 51.5 | 49.7 |
| Syphilis, locomotor ataxia, and general paralysis of the insane | 11.3 | 11.3 | 12.2 | 11.6 | 12.3 |
| Cancer (all forms) | 95.8 | 95.1 | 89.6 | 95.9 | 90.5 |
| Diabetes mellitus | 26.6 | 27.8 | 26.6 | 29.3 | 27.6 |
| Cerebral hemorrhage; apoplexy | 61.5 | 66.3 | 64.4 | 65.5 | 68.1 |
| Diseases of the heart† | 178.3 | 177.9 | 175.9 | 183.5 | 179.5 |
| Diseases of the coronary arteries | 28.3 | 31.1 | 27.2 | 32.4 | 27.2 |
| Angina pectoris | 7.7 | 8.9 | 9.4 | 9.1 | 9.7 |
| Pneumonia (all forms) | 92.9 | 109.4 | 97.1 | 114.6 | 106.9 |
| Diarrhea and enteritis | 6.2 | 5.6 | 5.1 | 5.5 | 6.2 |
| Appendicitis | 11.1 | 10.4 | 11.9 | 11.0 | 10.1 |
| Chronic nephritis (Bright's disease) | 58.9 | 63.3 | 60.0 | 61.4 | 65.1 |
| Puerperal state—total | 7.2 | 7.5 | 7.6 | 7.1 | 7.8 |
| Suicides | 8.7 | 9.7 | 8.9 | 8.7 | 8.5 |
| Homicides | 5.2 | 5.3 | 4.7 | 5.0 | 4.4 |
| Accidents—total | 46.9 | 43.9 | 49.3 | 50.3 | 49.9 |
| Automobile accidents | 17.0 | 15.9 | 16.3 | 19.5 | 15.8 |
| All other diseases and conditions | 178.2 | 174.5 | 174.5 | 165.1 | 167.4 |

*The rates for 1936 and 1937 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

†Excludes pericarditis, acute endocarditis, acute myocarditis, and angina pectoris.

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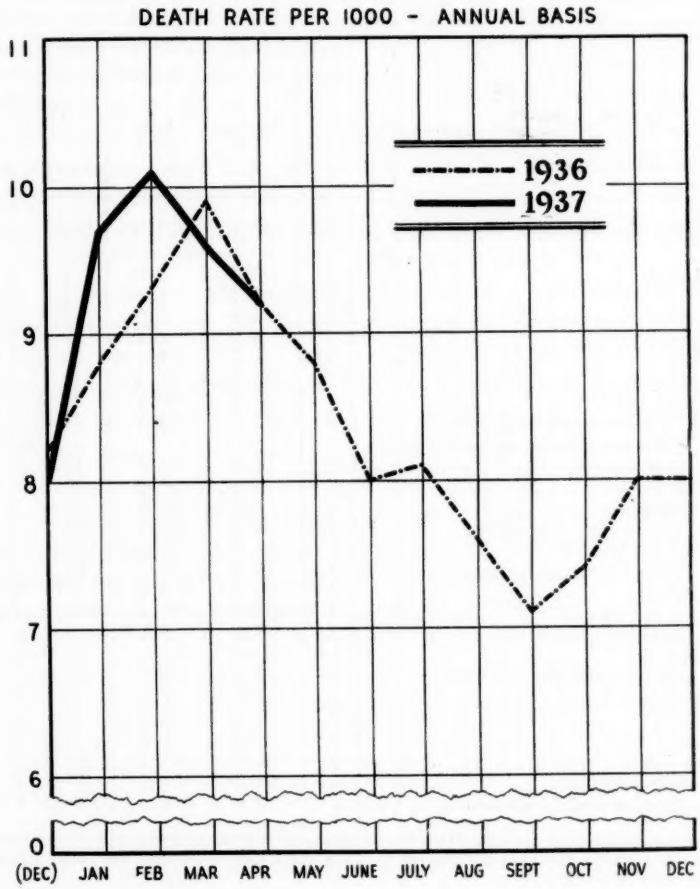
# DEATH RATES FROM ALL CAUSES

METROPOLITAN LIFE INSURANCE CO. – INDUSTRIAL DEP'T.
WEEKLY PREMIUM-PAYING BUSINESS – TOTAL PERSONS




| | (DEC) | JAN | FEB | MAR | APR | MAY | JUNE | JULY | AUG | SEPT | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1936** | | 8.8 | 9.3 | 9.9 | 9.2 | 8.8 | 8.0 | 8.1 | 7.6 | 7.1 | 7.4 | 8.0 | 8.0 |
| **1937** | | 9.7 | 10.1 | 9.6 | 9.2 | | | | | | | | |

*Rates are provisional*

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